

Shells and fossils collected by the earliest settlers of Jamestown, Virginia, USA

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ABSTRACT

The discovery of an intact valve of the fossil bivalve *Chesapecten jeffersonius* and shells of three tropical snail species in a c. 1610 James Fort well speaks to the curiosity that European colonists brought to the New World. While implementing the Virginia Company of London's mandate to identify and secure profitable natural resources, the Jamestown, Virginia, colonists apparently also gathered interesting natural objects. The shells may have been collected either as personal souvenirs, much like modern-day tourists, or as curios destined for the lucrative European conchology market. *Chesapecten jeffersonius*, Virginia's state fossil, was collected locally as representatives can still be found in James River Pliocene deposits near Jamestown. In contrast, the tropical shells were likely brought to Jamestown in May 1610 by survivors of an English shipwreck on Bermuda. The shells from both Virginia and Bermuda were discarded in the fort's well by June 1610 as the settlers hastily prepared to permanently abandon Jamestown.

Additional Keywords: *Chesapecten jeffersonius*, *Lobatus gigas*, *Strombus pugilis*, *Cittarium pica*, Jamestown

INTRODUCTION

The Virginia Company of London sent colonists to America to exploit natural resources including timber, iron, and, particularly, gold. Most of the initial exploratory efforts were focused upon finding resources that could reward Virginia Company shareholders with immediate investment returns (Horn, 2005). Gold was a top priority for the nascent colony, as reflected in Captain John Smith's lament that "there was no talke, no hope, no worke, but dig gold, wash gold, refine gold, load gold" (Smith, 1986a: 218).

Archaeological investigations of James Fort since 1994 by the Jamestown Rediscovery Project have uncovered

evidence that early endeavors to extract profitable resources included much more than the search for gold. Some of the undertakings included specialists from Germany producing glass; English metallurgists making trials of Virginia minerals that might alloy with English copper to make brass; and a tobacco pipemaker producing tobacco pipes from the local clay (Straube, 2004; Hudgins, 2005). The 17th-century Englishmen were also interested in New World flora and fauna that could be used for medicinal applications. Captain Gabriel Archer, writing in 1607 of Virginia's natural bounty, mentioned "Apothecary drugges of diverse sortes, some knowne to be of good estimacion, some strange, of whose vertue the salvages report wonders" (Archer, 1969: 102).

Botanical and biological specimens were also prized for being exotic. At the time of Jamestown's founding, European curiosity about the natural world resulted in a market for objects of nature, especially those from newly explored lands. *Naturalia* "was a commodity bought, sold, bartered, and exchanged—the centerpiece of a series of transactions that connected the world of commerce to the study of nature" (Findlen, 2002: 298). Nobles, wealthy gentlemen, and academics who could afford to do so, assembled these objects in cabinets of curiosities as eclectic reflections of status, records of travel, or tangible proof of their quest for knowledge. Indications of this pursuit for authentic naturalia have been discovered during archaeological excavations of James Fort's earliest contexts and particularly in the settlement's first well (Kelso et al. 2012: Structure 185).

In early June 1610, the well that had served as a water source for the inhabitants of James Fort for two years was quickly filled with half a million objects (Kelso et al., 2012, Figure 1). Jamestown was being abandoned, and these materials represented the remains of meals, the detritus of everyday life, and objects that were not considered valuable enough to transport to England. This action was precipitated by the preceding winter, dubbed by John Smith as the "starving time," which had claimed the lives of three out of four of the colonists and left many of the survivors sick and malnourished (Smith,

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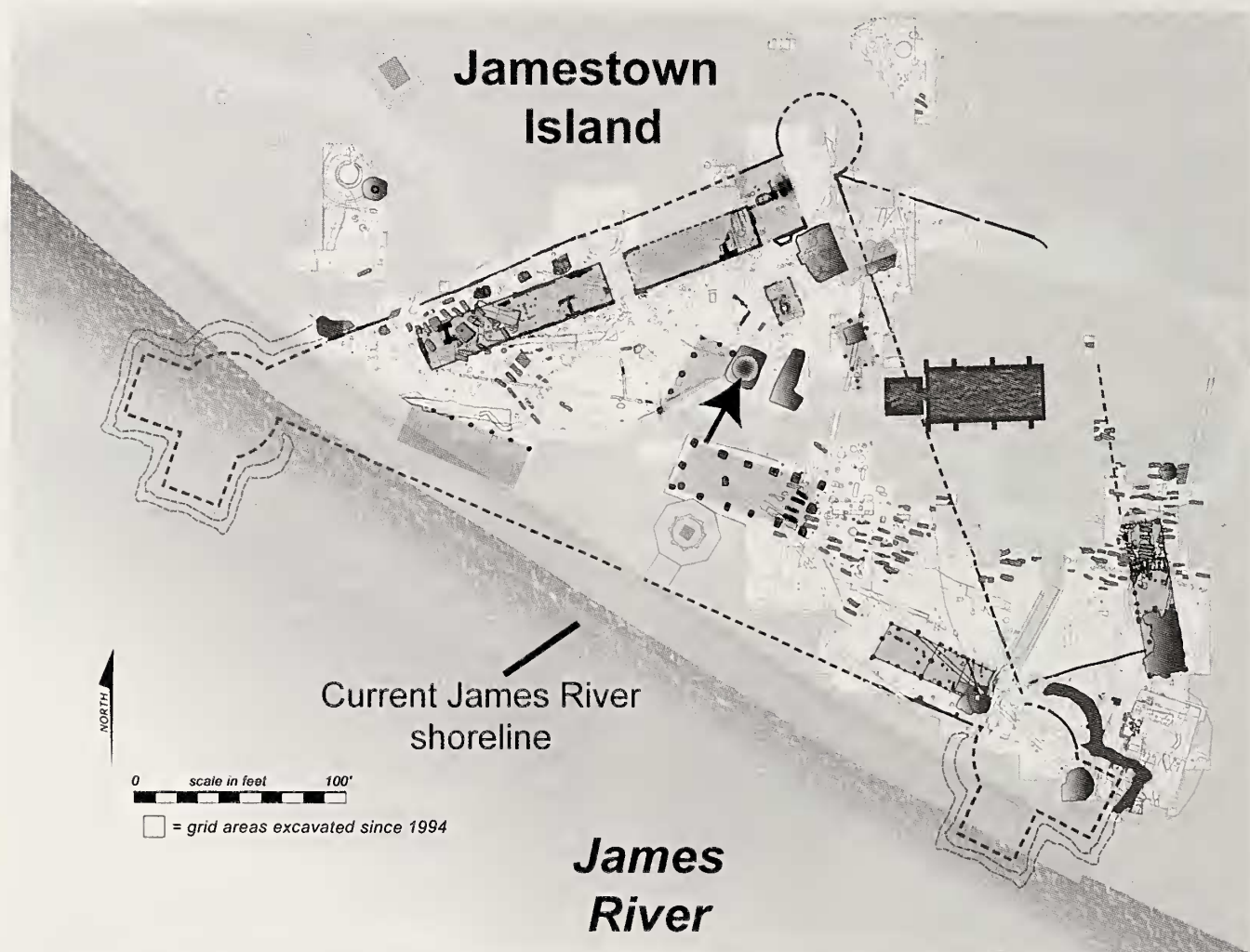


Figure 1. Archaeological plan of James Fort (Courtesy of J. May, Jamestown Rediscovery Project, Preservation Virginia) on the current shoreline of the James River, Virginia. Black arrow identifies the Jamestown well (Structure 185) from which the shells were excavated.

1986b: 340). With few prospects of obtaining food, Governor Thomas Gates decided to sail to Newfoundland where he hoped that the English fishing fleet could help transport colonists the rest of the way home. Gates did not want to attempt a transatlantic voyage from Virginia as his four small vessels were overloaded with over 150 colonists, the provisions needed for the voyage, the colony's weaponry, and "all the best things in the store," which hopefully could be sold for profit upon arrival in England (Strachey, 1973:76).

Four hundred years later, archaeological investigation of the c. 1608–1610 James Fort well revealed a variety of marine mollusk shells among the discarded items. The assemblage included an intact fossil *Chesapecten jeffersonius* valve (Say 1824) (Figure 2) as well as seventeenth-century specimens of tropical marine snails including the queen conch *Lobatus gigas* (Linnaeus 1758) (Figure 3), the West Indian fighting conch *Strombus pugilis* (Linnaeus 1758), and the West Indian

top snail *Cittarium pica* (Linnaeus, 1758, Figure 3). The molluscan fauna recovered from this earliest Jamestown well offer a glimpse into undocumented pursuits in the early years of the colony.

DESCRIPTION OF THE SHELLS AND HYPOTHESES FOR THEIR ORIGINS

Chesapecten jeffersonius (Bivalvia) is a large temperate scallop that occupied the shallow subtropical continental shelf of North America during the Pliocene, 2–5 million years B.P. Today, these marine sediments are exposed across the mid-Atlantic US coastal plain due to the drop in post-Pliocene sea level after the expansion of the Antarctic ice sheet (Rovere et al., 2014). This scallop species is part of a unique faunal group used by geologists to characterize the Sunken Meadow Member or the oldest strata associated with the Yorktown formation.

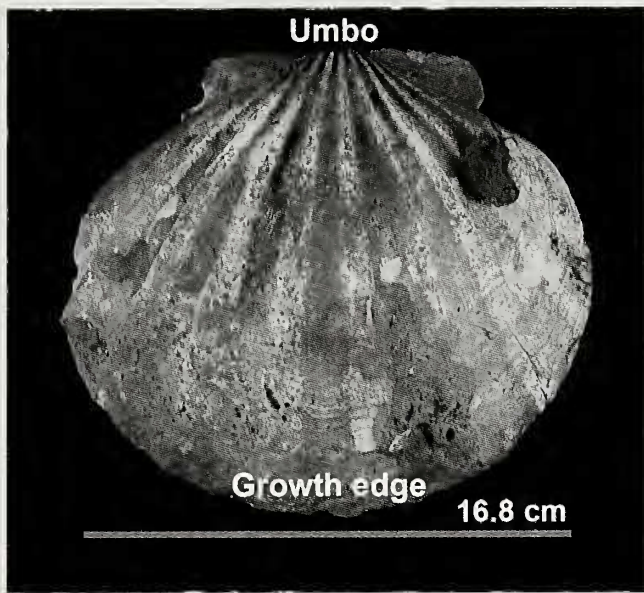


Figure 2. The *Chesapeake jeffersonius* valve discarded in the earliest known Jamestown well as James Fort was being abandoned in June 1610. Courtesy of M. Lavin, Jamestown Rediscovery Project, Preservation Virginia.

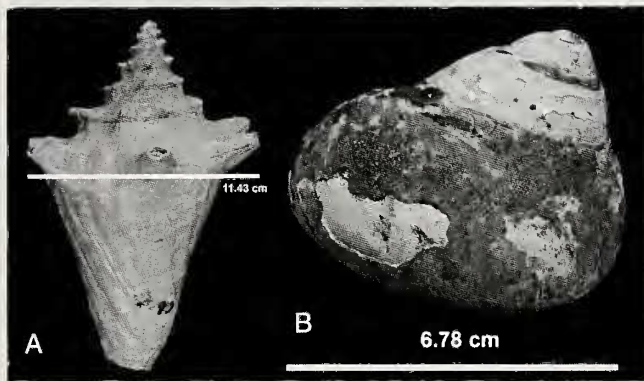


Figure 3. Bermudan shells brought to the New World by SEA VENTURE survivors that were thrown away in the Jamestown well in June 1610 including *Lobatus gigas* (A) and *Cittarium pica* (B). Both courtesy of M. Lavin, Jamestown Rediscovery Project, Preservation Virginia.

The fossils used as the modern basis for this description were collected from cliffs directly downriver of Sunken Meadow Pond on the James River in Surry County, Virginia (Ward and Blackwelder, 1980) (Figure 4).

When Thomas Say (1824) established the formal taxonomic designation for this scallop (as *Pecten jeffersonius*), he relied on illustrations made by Martin Lister in 1687 (*Historiae Conchyliorum*, Liber III: plate 167; Ward and Blackwelder, 1975). Thus, these scallops have the distinction of being the first American fossils ever described (Ward and Blackwelder, 1975). Although this species has been extinct for ~4 million years (Krantz, 1991), *C. jeffersonius* has played a role in modern paleoenvironmental reconstructions (e.g., Krantz 1990), paleon-

ological stratigraphic characterizations (e.g., Ward and Blackwelder, 1975: Zone 1 Yorktown Formation; Blackwelder, 1981: Sunken Meadow Member, Yorktown Formation), and now offers a window into Jamestown's early years.

Ward and Blackwelder (1975) characterized *Chesapeake jeffersonius* as having shell heights >12.0 cm where height is the longest distance from the umbo to the growth edge. The Jamestown *C. jeffersonius* valve is 15.6 cm high and 16.8 cm long (distance perpendicular to height, Figure 2). This height is greater than the largest valve height (13.77 cm) reported by Ward and Blackwelder (1975) and the *C. jeffersonius* from Kingsmill, Virginia, used by Krantz (1990, 10.3 cm shell height). The Sunken Meadow Member paleoenvironment was a temperate, marine habitat in which "many mollusks attained unusually large sizes" (Ward and Blackwelder, 1980: D35). Kingsmill is on a northern shore cliff downriver of Jamestown Island (Figure 4). At Kingsmill, as well as in other James and York River sites, fossils are deposited in the modern littoral zone, as they erode from Yorktown Formation stratigraphic layers, where they are easily collected.

James Fort was established on the banks of the James River, which served as the colony's major thoroughfare and source of seafood. In the summer of 1609, in an attempt to take pressure off Jamestown food and water sources, Captain John Smith dispersed colonists 32 km downriver to live on the "oyster banks" that flourished in the saltier water of Hampton Roads and to an Indian settlement near the mouth of the Nansemond River where the English traded copper for food (Archer, 1969, 282; Earle, 1978) (Figure 4). An additional 120 colonists were sent to the fresher water upriver near the "fall line" of the James (Smith, 1998b: 220). It is probable that the colonists stopped during river trips to investigate food sources as well as to wait for favorable wind or tidal conditions to facilitate travel.

As the colonists grew more familiar with the region, they investigated inland areas as potential sources of mineral wealth and also to mimic the native Algonquin seasonal occupancy patterns. It is possible that the fossil scallop was collected on a trip between Jamestown Island and the temporary upriver settlement near the "falls". Sunken Meadows Pond and the adjacent cliffs, the type locality for the Sunken Meadow Member of the Yorktown formation (Ward and Blackwelder, 1980), are approximately 16 km upriver of Jamestown Island on the opposite shoreline (Figure 4). It is likely colonial travelers investigated these and other James River sites where Yorktown formation material was exposed during regular travel as well as when on exploratory expeditions.

A less likely scenario is that the scallop was discovered during Smith's initial exploration of the Chesapeake Bay in summer 1608 and retained as a souvenir. *Chesapeake jeffersonius* occurs in Yorktown formation deposits located along the track of Smith's second Chesapeake voyage (Jul.–Sep. 1608, Clark et al., 2007). The last legs of this voyage included areas with *C. jeffersonius* deposits

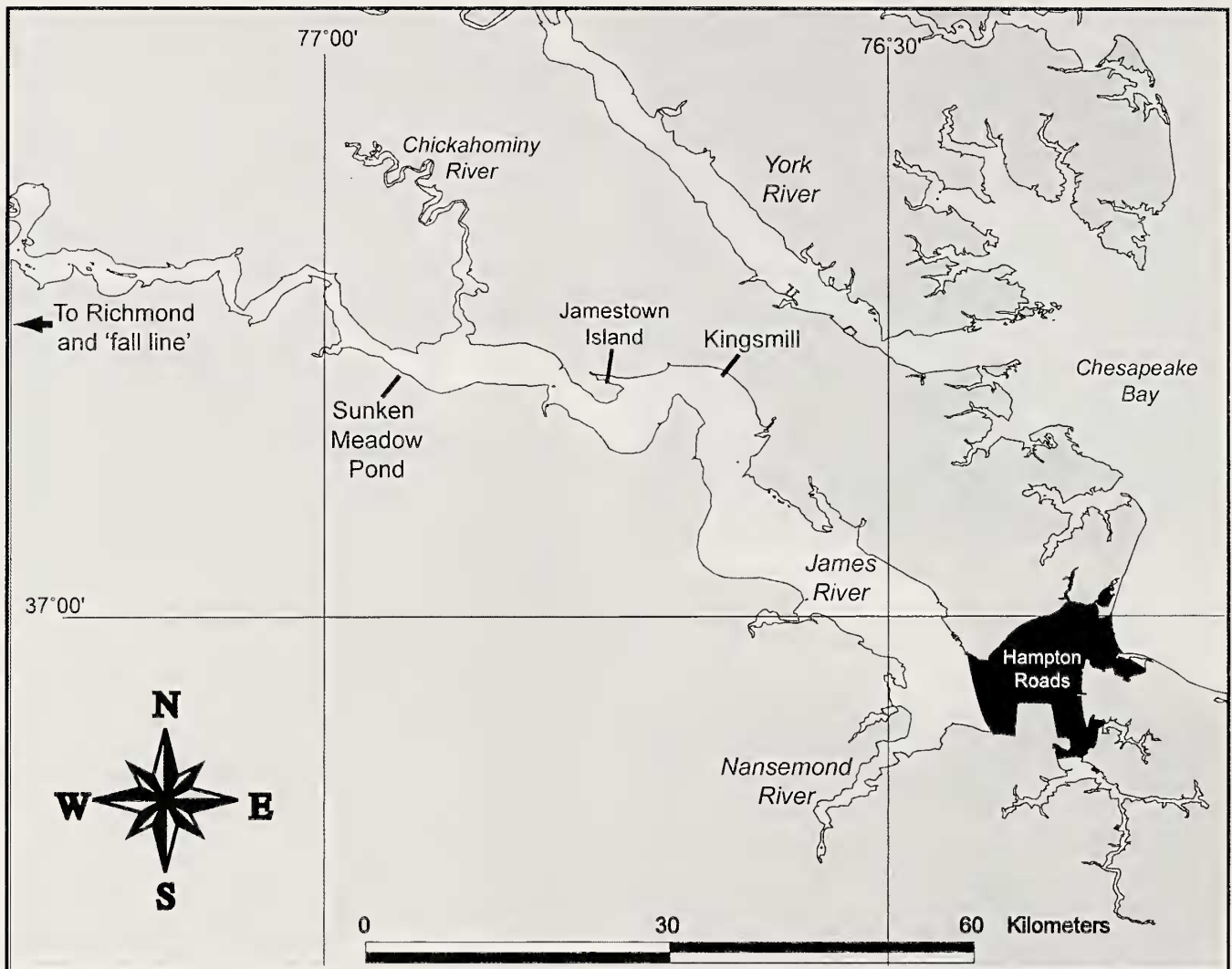


Figure 4. Map of the James River, Virginia, USA showing the likely collection sites for the fossil scallop in relation to Jamestown/James Fort with the Hampton Roads region (shaded) indicated for reference.

on the western Chesapeake shoreline south from the Patuxent River into the Rappahannock, Piankatank, Poquoson, Elizabeth, and Nansemond Rivers (Clark et al., 2007).

The possibility that the scallop was a gift to Smith from one of the Algonquin chiefdoms he visited is more intriguing but even less likely than the other scenarios. Although Virginia's native Algonquin tribes used small fossil gastropods (such as the marginellid *Prunum limatum* (Conrad, 1834)) as embroidery ornaments for ceremonial robes (e.g., "Powhatan's Mantle", Rountree and Turner, 2002: 115–116), Algonquin use of *C. jeffersonius* was not documented by the early colonists.

Preservation of a large intact scallop shell through the rigors of James Fort life during the "starving time" is impressive. One can only wonder whether the original collector died and the fossil simply became another item to be discarded when the order was given to abandon the fort. While considered of value at one point, it was

deemed of little worth relative to food and colonists since space on the departing ships was limited. Other fossils (e.g., shark's teeth) have also been discovered by archaeologists in other James Fort contexts from the 1607–1610 period. Fossils would not have been recognized in the early 17th century as representing extinct ancient life but rather as minerals formed by natural processes in the earth, which sometimes resembled living organisms (Cook, 2003; MacGregor, 2007).

Shells of three tropical snail species were also deposited in the Jamestown well in June 1610. The tropical snails (Figure 3) are found neither in the Yorktown formation nor in modern Chesapeake habitats. In fact, *Cittarium pica* does not currently live in Bermuda. Shells of this species from Bermuda date from the Pleistocene, but are today (as in the 1600s) commonly inhabited by the terrestrial hermit crab *Coenobita clypeatus* (Fabricius, 1787; Olson and Hearty, 2013). These tropical shells were most likely collected in Bermuda between July 28, 1609

and May 10, 1610 (Strachey, 1973). These dates encompass the time span between the Bermuda wreck of the *SEA VENTURE*, carrying prospective Jamestown colonists, and the survivors' departure for Jamestown almost 10 months later. The shipwreck survivors, including the newly appointed governor, Sir Thomas Gates, arrived at Jamestown shortly before the colony's abandonment in June 1610. There was no other recorded contact between Jamestown and Bermuda prior to this date. Further, accounts of the voyage from Bermuda to Virginia do not mention any landfall, but it is possible that either the queen conch or the West Indian fighting conch might have been collected during a brief stop for provisions or water along the Southeast US coast since both species historically ranged as far north as Georgia (Abbott, 1974).

We hypothesize that the Bermudan shells were collected by the *SEA VENTURE* castaways as attractive curios, much like modern travelers pick up sea shells. Knowledge of the shells' intrinsic worth to collectors in Europe may have been another motivating factor for the colonists' interest in keeping these objects. The study of molluscan shells, known as conchology, developed as a scholarly discipline during the 17th century (Huxley, 2003). Shells from around the world could be sold to private European natural history collectors for a considerable profit. The discovery of specially gathered shells in the fort well speaks to the survival mentality of the remaining colonists when they abandoned Jamestown in June 1610.

SUMMARY

Molluscan fauna recovered from the earliest Jamestown well offer a glimpse into undocumented pursuits on the part of the early English colonists relating to the developing commodification of natural objects. Virginia and its early 17th-century English settlement were part of the growing network of global trade that placed value and significance on the exotic, including objects of nature. A fossil *Chesapecten jeffersonius* was collected locally, most likely by a colonist exploring the James River in search of merchandisable commodities. Tropical snail shells gathered in Bermuda during the winter of 1609–1610 were sufficiently interesting and perhaps valuable, to be saved and transported by the *SEA VENTURE* shipwreck survivors to Jamestown in May 1610. Despite the ascribed values and significance that led to them being picked up initially, all of the shells were ultimately discarded in June 1610 during the swift abandonment of James Fort. This departure was only thirty hours in duration as the colony was providentially revitalized by the arrival of the colony's new governor with copious provisions and fresh settlers. But, in retrospect, if the settlement had not experienced this temporary major setback it is very unlikely that the fossil and tropical mollusks would have been discarded at Jamestown for archaeologists to find and interpret 400 years later.

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